G-4 NEWS

Volume 4 Issue 1 *The Newsletter for Oxygen Compatibility Practitioners* Spring 1997

HELP! Where Did CGA Velocity Curve Come From?

G-4 would like to conduct a test program to propose and support changes to criteria for gas velocity at higher pressure and temperature in CGA G-4.4: "Industrial Practices for Gaseous Oxygen Transmission and Distribution Piping Systems."

Unfortunately, the historic basis for the present curve appears to have been lost. Even as related test programs for thick stainless steel and metal combustion thresholds at high temperatures get underway, a strategy for this need is elusive. If anyone has knowledge or resource material bearing on the establishment of safe velocities, please advise Ting Chou, Chairman G-4.02 on Practices, phone (908) 771-6131.

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Progress at St. Louis:
.....*Anticipation of things to come!*

Anticipation hung over the St. Louis meeting as the San Diego symposium approaches and as the testing of thick stainless steel and solicitation of funds for high temperature metals tests are about to begin.

The ***G-4 Main*** Committee elected to hold the next symposium ("Oxygen 2000") in Paris in Fall 2000.

The ***G4.01 Test Methods*** Subcommittee balloted a rewrite of G 86 (pressurized mechanical impact) to incorporate ambient-pressure LOX impact tests. Five negative votes were reconciled, and a sub- and Main-committee ballot will be conducted this summer.

Statistical analysis of the round robin tests for G 72 on autogenous ignition temperature measurements is underway.

A standard covering the Stennis Space Center's O-ring tester is in preparation.

The ***G4.02 Practices*** first Industry Sponsored Program on thick stainless steel is pending, as soon as contract details are resolved. The solicitation for the second proposal on metals at high temperature will begin after the first test program begins.

An administrative ballot of a new PC utility screen on calculations for the use of bypass valves was reconciled and it is expected to be available shortly.

Standard G 63 on nonmetals and G 94 on metals are due for revision or reaffirmation and groups were assembled to

*(See **Progress** on page 2)*

Inside This Issue

1997 Symposium Adds/Loses Papers

Two of the twenty-five titles listed in the Fall ***G-4 News*** article for the 1997 symposium have been withdrawn and four additional last-minute paper commitments have been received. The new titles are:

"Ignitability of Advanced Composites in Liquid and Gaseous Oxygen,"

"Use of Oxygen-Enriched Mixtures in Recreational SCUBA Diving: Is the Public Being Informed of the Risks,"

"Factors Affecting the Reproducibility of Upward Propagation Pressure Thresholds of Metals in Gaseous Oxygen,"

"Fuel Cell Elastomeric Materials Life Extension Testing: Effect of 450 and 6200 kPa Oxygen,"

The withdrawn titles are:

"Materials in the Seal Configuration Test Apparatus"

"An Ultra-High Pressure Vessel at BOC/GTC for Autoignition Study of Engineering Materials in oxygen."

In addition, the Special Technical Publication (*STP 1319*), destined to publish these papers, may contain up to twelve papers that have been offered at G-4 seminars in concert with regular G-4 meetings. If all of these papers are completed in time for inclusion, *STP 1319* will be one of the most robust volumes the Committee has sponsored to date. Clearly, early fears within the committee that the establishment of the seminar series might siphon critical papers needed to support these symposia did not materialize. As a result, the seminar series is being sustained through to the International Symposium in Fall 2000.

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Spring Seminar Session

At this Spring '97 seminar session, two presentations were offered. Neither was a "paper."

Joel Stoltzfus, and Harold Beeson, presented an overview of a new NASA course they have developed along with Elliot Forsyth, Mike Shoffstall, and Mike Mannon. NASA WSTF began the first offerings of the course to NASA oxygen-system technicians this month.

The course is three hours long and is geared to someone involved with oxygen system assembly and, therefore, decisions and practices that tend to represent one of the last lines of defense against oxygen incidents.

This course is intended as an alternative to both the current ASTM TPT course and the planned advanced TPT course in preparation, and it is focused on specific dos and don'ts rather than on the theoretical aspects of incidents and the systematic material and system design methods embodied in the full set of G-4 standards and the detailed review in "**Controlling Fire Hazards in Oxygen Handling Systems**."

The presentation posed the prospect that ASTM G-4 might make such a course, perhaps based on the existing NASA package, available to the general public.

In the second presentation, Dennis Schroll gave an overview of the Department of Defense (DOD) Acquisition Reform Activity. DOD may adopt some ASTM G-4 standards related to oxygen to replace existing standards written by the government. Schroll will be identifying the appropriate candidates.

These presentations will not be available in hard copy nor in any future STP.

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(***Progress*** *continued from page 1)*

review them and offer a proposal.

The committee is going to consider adopting NASA's Safety Standard 1740.15 (a design guide) as an ASTM Standard.

The ***G4.05 Education*** subcommittee hosted 2 talks at its Seminar Series (See ***Seminar*** article, page 2). One discussed a potential new technician training course, and the other addressed Department of Defense goals to adopt public standards.

A Technical and Professional Training (TPT) course held in conjunction with the meetings contained 10 students. Since the Fall, there has been one other offering with a student attendance of 25.

The Advanced TPT Course Task Force is progressing slowly.

A new "Technician's Training Course" developed at NASA was overviewed for possible adoption.

The **G4.06 Symposium** subcommittee reported that there are twenty-seven abstracts received for the 1997 G-4 International Symposium. Peer reviews are underway, and the Editors advise that rigid due dates are being enforced. Therefore, late papers may publish with the STP planned for the year 2000. In addition, this STP will contain as many as twelve papers given at seminar sessions.

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G-4 Web Site

If you tried to access the G4 Home Page recently using the URL in the Fall ***G4 News***, you probably failed. Following a change of servers, the address was changed slightly to: ***www.wstf.nasa.gov/labs/oxcompat/default.html***. However, it has been changed back and should again be responding to ***www.wstf.nasa.gov/labs/oxcompat/.*** Since further changes may occur, if you encounter problems, our Webmaster's phone number is (505) 524-5299.

The Page has not changed since the Fall. However, the Fall ***G-4 News,*** the new G4Utilities disk (with the revised G4Math that estimates Distance/Volume pieces), and the G4People database (which is expanded to include E-Mail addresses) will be available as a separate files, and all will be on-line shortly.

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The "EIGA." What's That?

The European Industrial Gases Association (EIGA) is similar to the Compressed Gases Association in the United States. As with the CGA, the members are companies (97), but the EIGA members are limited to oxygen producers. Formed in 1923, the organization was previously known as the CPI IGC (Industrial Gases Committee of Commission Permanente Internationale). The goal of EIGA is to promote safety in the industrial gas, cryogenic liquid and related products industry.

As with G-4 and CGA, EIGA develops voluntary standards.

EIGA is not open to the general public but its documents are available to anyone.

Among the EIGA documents of interest to oxygen compatibility practitioners are: DOC 8/76 "Prevention of accidents arising from enrichment or deficiency of the oxygen in the atmosphere," DOC 6/77 "Oxygen/fuel gas cutting machine safety," DOC 10/81 "Reciprocating compressors for oxygen service," DOC 11/82 Code of Practice for the design and operation of centrifugal liquid oxygen pumps," DOC 13/82 "The transportation and distribution of oxygen by pipelines," DOC 20/83 "Distribution of oxygen, acetylene, and methylacetylene at users' works," DOC 16/85 Liquid oxygen storage installations at users' premises," DOC 21/85 "Bulk liquid oxygen storage at production sites," DOC 43/90 "Hazards associated with the use of activated charcoal cryogenic gas purifiers," DOC 4/93 Fire hazard of oxygen and oxygen-enriched atmospheres," DOC 27/93 "Centrifugal compressors for oxygen service, Code of Practice" and DOC 33/97 "Cleaning of equipment for oxygen service guidelines."

EIGA documents may be ordered from:
Publications Du Soudage
Et De Ses Applications,
Post address:
BP 50362 - 95942 Roissy CDG Cedex,
90, rue des Vanesses,
ZI Paris Nord II
93420 Villepinte
Tel (33-1) 49 90 36 00
Fax: (33-1) 49 90 36 50.

The EIGA office is in Brussels (Phone: 32-22177098, Fax: 32-22198514). A home page is being developed for the Internet.

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"SAE A-10" What's That?

The Society of Automotive Engineering (SAE) was formed in 1916 and is best known for its work in ground transportation. However, SAE has been a driving force behind aerospace progress, providing technical knowledge needed to transform air transportation. It is involved in all sectors of air mobility, including airplanes, helicopters, spacecraft, and ground support. The organization develops and applies standards which address new materials, fuels and lubricants, turbine engines and other power plants, manufacturing and testing technology and vehicle components.

Through its technical committees, SAE has produced more than 4000 aerospace documents accepted by corporate and government interests. SAE issues standards, recommended practices and specifications. Although these standards are voluntary as drawn, many are mandatory by Federal Aviation Administration (FAA) rulings.

Of interest to oxygen compatibility practitioners is SAE Committee A-10 on commercial aircraft oxygen equipment. A-10 meets twice a year with 30 or more members from industry and government. A-10 was formed in the 1950s to meet the need to certify oxygen equipment for the first jet transports. Jet aircraft were flying at higher altitude, and oxygen breathing equipment was needed for crew and passenger safety. This led to formation of A-10 and its first standard: Aerospace Information Report (AIR) 505, adopted by the FAA. FAA still certifies oxygen equipment on commercial aircraft using A-10 standards. Also, many oxygen equipment designers and maintainers use the standards as "Best Commercial Practices."

A-10 has subcommittees on: oxygen cleaning, education, operations, oxygen science, fabrication and testing, and systems. Currently, 30 documents are under development. For questions and membership requests: call (412) 776-4841. Document requests, call SAE Customer Service at (412) 776-4970. Internet address: www.sae.org.

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"*Remote*" Paper Succeeds!

Would you or your associates like to present a paper at a G-4 seminar? But are you daunted by the time and expense to travel to a G-4 meeting? Now there may be a way!

At the Fall 1996 G-4 meeting seminar, David Castillo of Air Products and Chemicals, Inc., pioneered a "remote" paper presentation mechanism in offering his paper: "**Avoiding Bypass Valves in Selected Oxygen Systems**." Castillo provided a MSPowerPoint presentation file in advance of the meeting. Harold Beeson was in attendance and operated computer projection gear displaying Castillo's slides. Dave then made his verbal presentation by way of a conference phone call.

Attendees saw high-quality slides, heard Dave make a live presentation, and were able to ask questions in real time. Most of the benefits of a live show were achieved, except for line of sight observation of the speaker. Offsetting that, Harold provided additional highlighting of materials being discussed (ala John Madden) with the screen pointer feature of PowerPoint, a feature difficult for many authors to provide even in person.

Evaluation and comments since the meeting indicate that this is a very adequate method of offering papers without the author incurring the cost and lost time and travel expense to attend the meeting, in addition to the effort needed to prepare the paper.

In the future, there are methods in development employing the Internet or phone video conferencing that may improve on this mechanism. However, G-4 considers this present approach a demonstrated success, within the reach of many, and hopes that this option will be explored by other authors who have been discouraged from preparing and offering papers in the past.

So if there is a topic that you can provide to our seminar audience, we hope this will be the incentive for you to proceed with it. Remember! G-4 has a list of titles and cryptic example abstracts for papers that would be excellent contributions. It is on our WebSite or a copy can be requested from Steve Mawn at ASTM Headquarters. Many of these are tutorial or introductory topics that can be prepared without expensive research projects.

Since the millennia-ending symposium of 2000 will be three full years off, there will be at least five opportunities to offer papers at G-4 seminars between now and then. We hope you will "join" us and share your skill with us.

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I want G-4 News!

Your name will be listed in our publicly available database of oxygen compatibility enthusiasts, please check ***all*** boxes that apply to you.

☐ New Request ☐ Correction

Name _____
Company _____
Address _____
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☐ G-4 Member
☐ G-4 Symposium
☐ G-4 TPT Course Student
☐ Consultant
☐ Commercial Testing Source
☐ General Interest in Subject

Return to: Steve Mawn, ASTM Committee G-4
100 Barr Harbor Drive, West Conshohocken PA 19428-2959, Fax: (610) 832-9666

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Non-Profit Org.

ASTM Committee G-4
100 Barr Harbor Drive
West Conshohocken PA 19428-2959

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G-4 Events and Housekeeping

Regular meetings of the Committee G-4 have been scheduled as follows:
Nov 11-12, 1997.....San Diego, CA
Apr 22-24, 1998 .....Atlanta, GA
Sept 23-25, 1998.....Cocoa Beach, FL
Mar 17-19, 1999.....Seattle, WA
Sep 15-17, 1999.....Las Cruces, NM
Mar 15-17, 2000.....Toronto, Canada
Fall 2000.....Paris, France
Contact Steve Mawn (610) 832-9726 for details or membership data. ASTM Membership is $65 per year.

The next G-4 Symposia are on:
Nov 13-14, 1997.....San Diego, CA
Fall 2000.....Paris, France
For a Call for Papers or Program, call Steve Mawn (610) 832-9726.

Public offerings of the course: *Controlling Fire Hazards in Oxygen Handling Systems* are on:
Nov 10-11, 1997.....San Diego, CA
Apr 20-21 1998.....Atlanta, GA

Contact Scott Murphy (610) 832-9685 for information or brochure. Cost is $675.00 (including text). Can be offered at your site for a negotiated price. The two-volume course text: *Fire Hazards in Oxygen Systems* may be ordered from Scott Murphy (610) 832-9685 Price is $195.

The G-4 Videotape *Oxygen Safety* PCN 12-700880-31 may be ordered from ASTM Customer Service at (610) 832-9585. Price $75 ($67 for members).

Recent G-4 Standards actions/revisions:
G 93-96 " Cleaning Methods (Revision).....".
G 145-96 "Study of Incidents...."
G 144-96 "Residual Contamination by Total Carbon Analysis..."
G 122-96 "Evaluating Cleaning Effectiveness (Revision)..."

All G-4 standards appear in part 14.02 of the Book of Standards or may be ordered individually from ASTM Customer Service (610) 832-9585. Typical standard prices range $15-30.

Details:

This newsletter is a product of ASTM Committee G-4. The editorial staff is the G-4 Committee Officers and ASTM Staff:

G4 Chair	John Cronk
G4 Vice Chair	Joel Stoltzfus
G4 Secretary	Ulrich Koch
.01 Test Methods	Coleman Bryan
.02 Practices	Ting Chou
.03 Terminology	Harold Beeson
.04 Planning	Paul Klein
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.90 Executive	John Cronk
.91 Editorial	Stephen Bonafazi
.92 Research	Theodore Steinberg
.93 Statistics	Barry Newton
.94 Publicity	Barry Werley
ASTM Staff	Steve Mawn

Mail to: ***G-4 NEWS***, Steve Mawn, ASTM Committee G-4, 100 Barr Harbor Drive., West Conshohocken, PA 19428-2959., Phone (610) 832-9726, Internet: smawn@astm.org